

## Death-Optimal Physical Conditions

Eliyahu Stoupel<sup>1</sup>, Ramune Kalediene<sup>2</sup>, Jadviga Petrauskiene<sup>2</sup>, Skirmante Starkuviene<sup>2</sup>,  
Evgeny Abramson<sup>3</sup>, Peter Israelevich<sup>4</sup>, Jaquelin Sulkes<sup>3</sup>

<sup>1</sup> *Cardiology Department, Sackler Faculty of Medicine, Tel Aviv University, Petach Tikva, Tel Aviv, Israel,* <sup>2</sup> *Medical Management, University of Medicine, Kaunas, Lithuania,*

<sup>3</sup> *Informatics & Epidemiology Department, Rabin Medical Center, Petach Tikva,*

<sup>4</sup> *Geophysics & Planetary Sciences, Tel Aviv University, Tel Aviv, Israel*

**Background:** Death and life are connected. In recent years the studies about close relationship between many biological processes and environmental physical conditions were published. The aim of this study is to explore physical activity factors related to death distribution by time. Time, Solar, Geomagnetic, Cosmic Ray activity were studied in relation to death total and for some groups of causes and for each gender.

**Patients & Methods:** 718817 deaths in years 1990-2006 in Lithuania were studied monthly for the total and separate death causes groups, for both gender and compared with concomitant physical activity factors mentioned above. The data come from the National Archive of Lithuania; cosmophysical data- from Space Science institutions in the USA, Russia, Finland.

**Statistics:** Pearson correlation coefficients and their probabilities between compared parameters were obtained. Probabilities of 95% and higher were described as significant. These of 90%-94%- as a strong trend toward significance. Lower as non significant (N.S.).

**Results:** monthly death number were significantly inverse related to solar activity indices ( $r=-0.3$ ,  $p<0.0001$ ) and related to CRA (Neutron) activity ( $r=0.3$ ,  $p=0.0001$ ) for the total deaths group; this relationship was stronger for men, but also highly significant for woman. These links were seen also for stroke, non cardiovascular deaths, accident victims, oncology (malignant tumors), suicide. The number of traffic accident deaths was related to solar and geomagnetic activity and inverse related to CRA (Neutron) activity. Death number was annually rhythmic with acrophase for Total deaths in February and suicide in June-July.